



Open Science Grid

Submit locally, run globally.

dHTC and Services for Campus



Open Science Grid

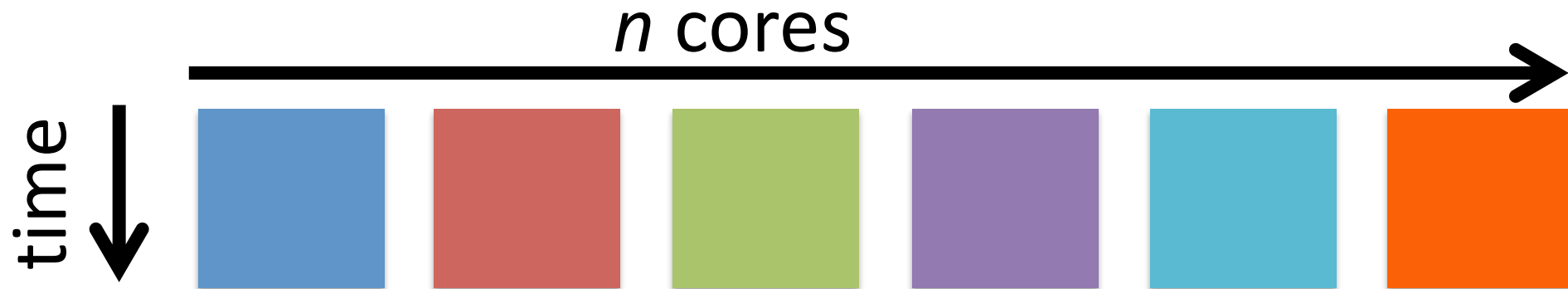
- **What is dHTC? What is OSG?**
- **dHTC and OSG Services for Campuses**
 - Build ‘Local’ dHTC Capacity with **HTC**Condor
 - Share Local Resources via OSG
 - Support Your Researchers to Use OSG
 - **TODAY! (via OSG Connect)**
 - dHTC and dHTC Facilitation training
 - Local submission points into OSG
 - Support for CC* Proposals

All “FREE” and OPEN, with Facilitation for Campuses

What is High Throughput Computing? An Analogy



distributed High Throughput Computing (dHTC)



versus internal parallelism (multi-threading, MPI, etc.)

- Scheduling: only need **1 CPU core, each** (shorter wait; faster to peak)
- No special programming required (laptop-style, no multi-threading, etc.)
- Easier recovery from failure (if one core fails, job requeued, other cores/jobs continue)
- Number of concurrently-running jobs is *more* important
- CPU speed and homogeneity are *less* important

Research Computing Facilitators

The Missing Human Link in Needs-Based Research Cyberinfrastructure

ECAR

ECAR Research Bulletin | May 16, 2016

Lauren Michael, University of Wisconsin–Madison

Bruce Maas, University of Wisconsin–Madison



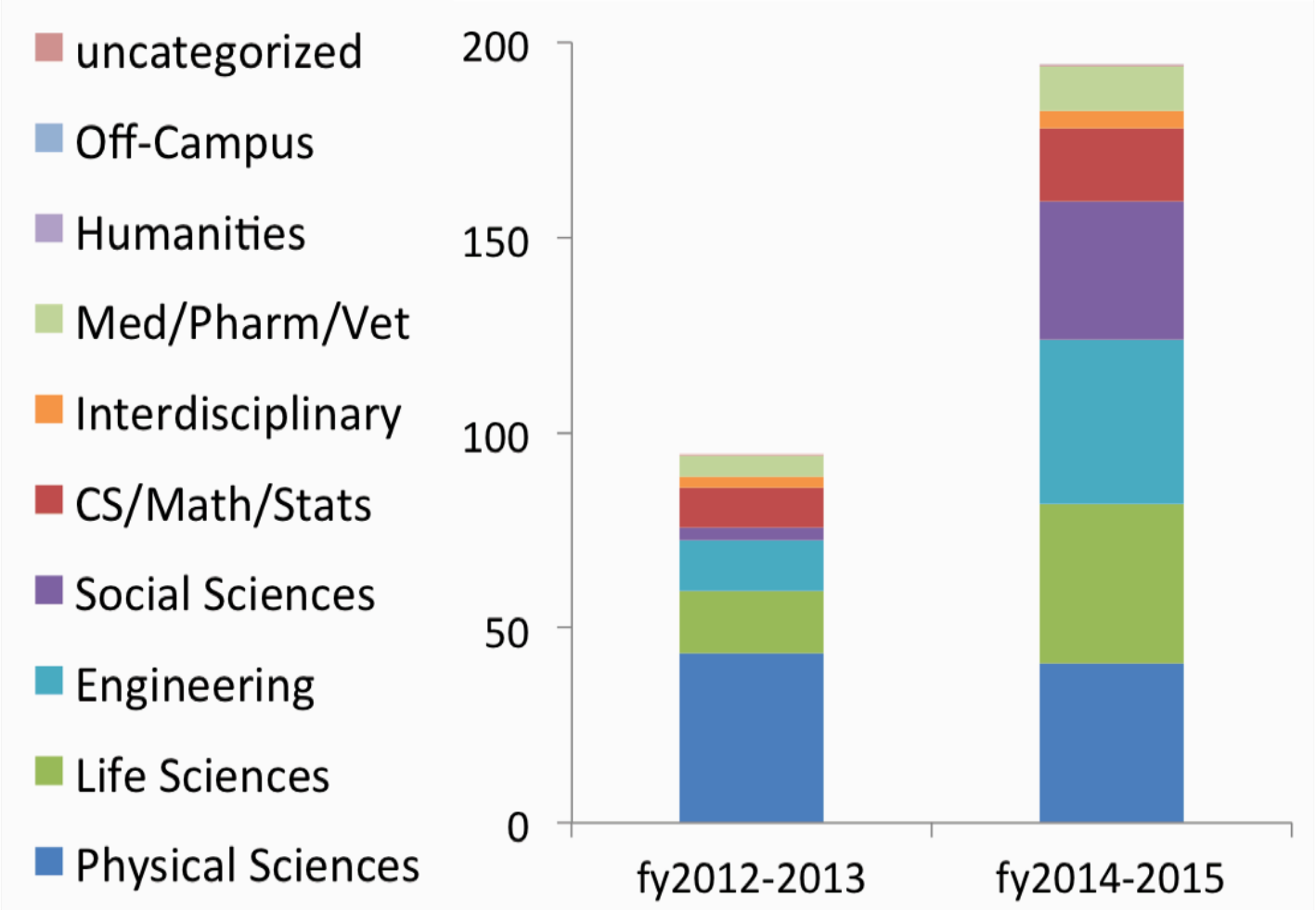
Overview

As the roles of core, campus-supported IT services for research have expanded—including the emergence of cloud-based models—the benefits of on-campus human support and user engagement have become increasingly apparent. Ongoing challenges in securing research funding reemphasize a need to demonstrate significant societal impact via effective and efficient investments. At the same time, many campus research computing providers still face challenges in engaging researchers represented in the “long tail” of computing needs, where potentially significant, compute-enabled transformations to scholarship have yet to be realized. The most common models for research computing resources may already meet the significant needs of well-established or “traditional” users, typically in the physical

Impact Across Domains



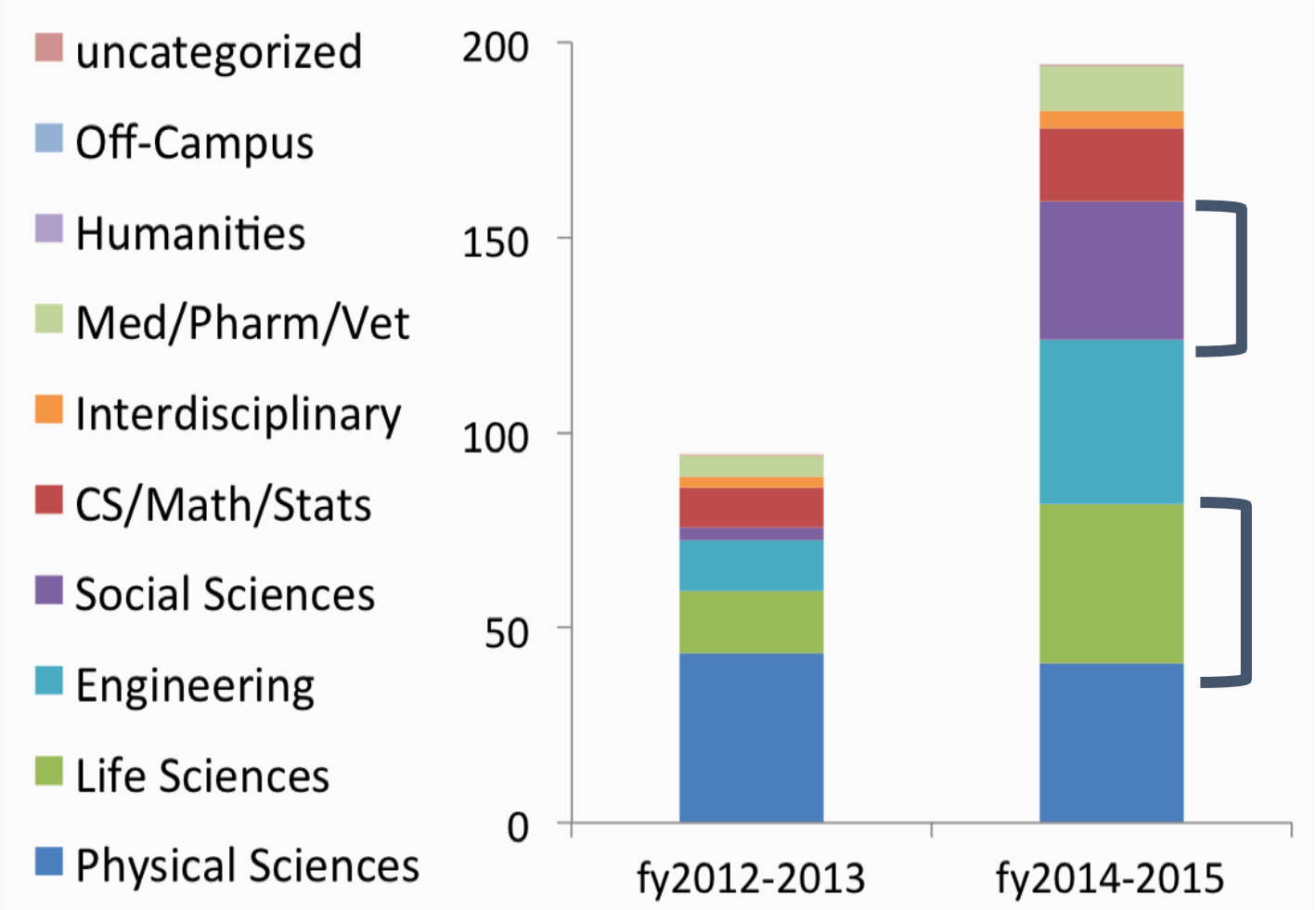
Millions of CPU Hours via CHTC





Impact Across Domains

Millions of CPU Hours via CHTC

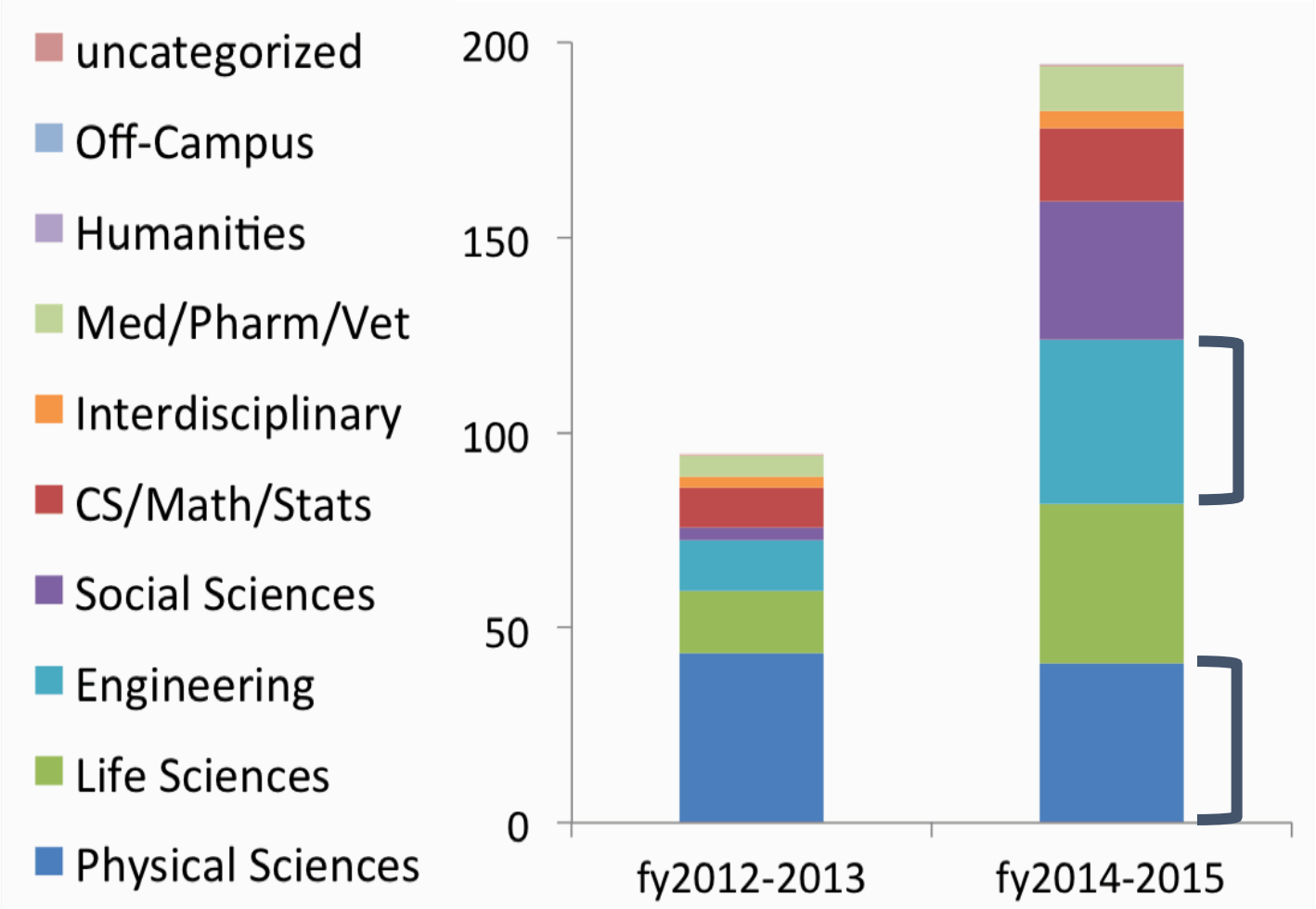


**>95% high
throughput
computing**



Impact Across Domains

Millions of CPU Hours via CHTC



**>60% high
throughput
computing**

Future Directions for
**NSF ADVANCED
COMPUTING
INFRASTRUCTURE**

to Support U.S. Science
and Engineering
in 2017–2020

Future Directions for

In the middle of page 10...

... well-established peer of theory and experimentation. Increased capability has historically enabled new science, and many fields increasingly rely on **high-throughput** computing....

In the middle of page 13...

... Many fields increasingly rely on **high-throughput** computing that requires a greater aggregate amount of computing than a typical university can be expected to provide. Such applications can be run ...

In the middle of page 15...

... require a single, large, tightly coupled parallel computer and (b) broaden the accessibility and utility of these large-scale platforms by allocating **high-throughput** as well as high-performance workflows to them....

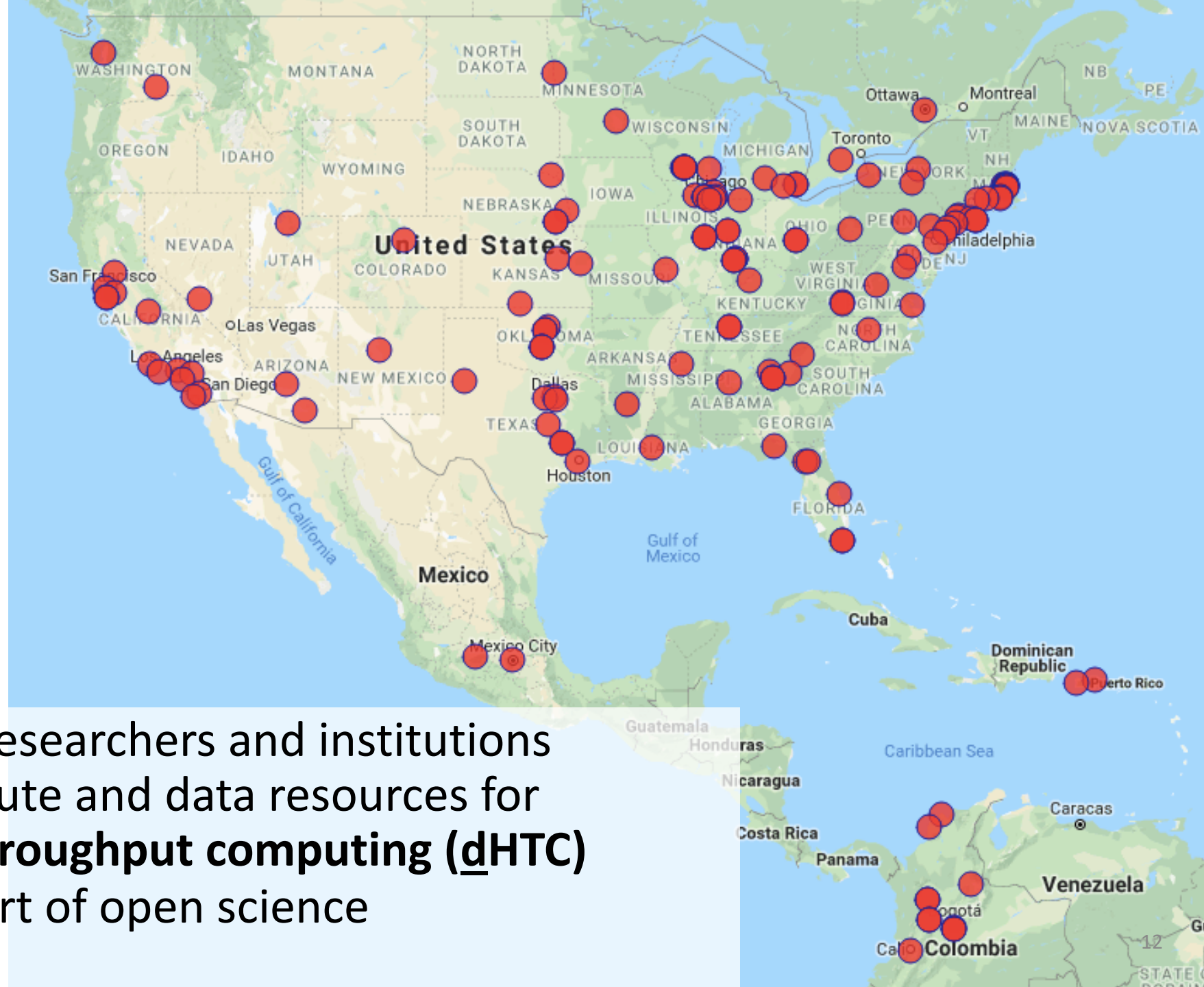
in 2017–2020



Open Science Grid

What is the Open Science Grid?

a consortium of researchers and institutions
who *share* compute and data resources for
distributed high-throughput computing (dHTC)
in support of open science



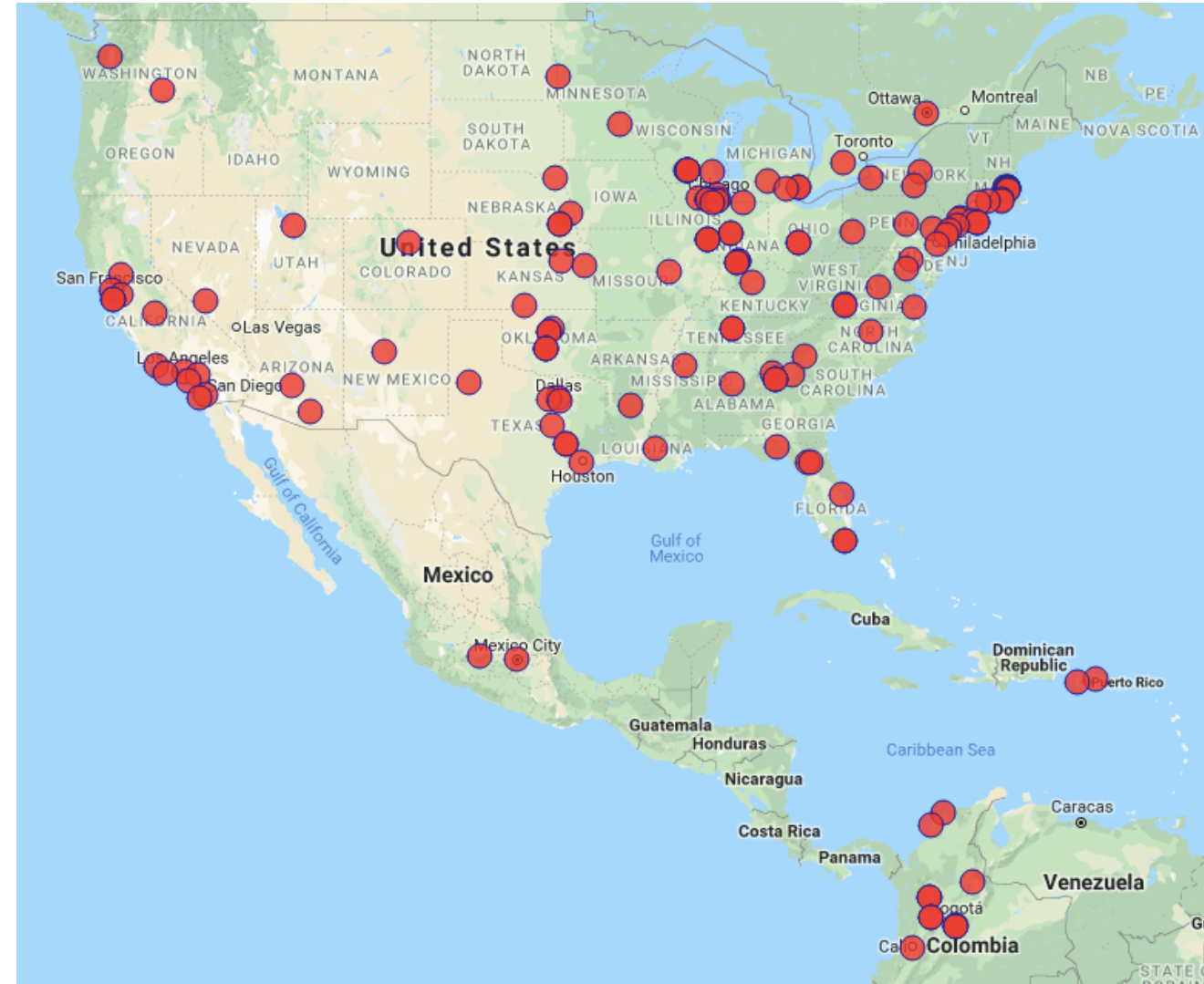


Open Science Grid

Who Participates?

- Researchers
- Multi-Institution Collaborations
 - Atlas/CMS (Higg Boson), and others
- Academic Institutions and National Laboratories
- Science Gateways

Advancing this spectrum requires a diversified portfolio of services.





Open Science Grid

Support for CC* Awards

Campus Cyberinfrastructure (CC*)

PROGRAM SOLICITATION

NSF 20-507

REPLACES DOCUMENT(S):

NSF 19-533



National Science Foundation

Directorate for Computer and Information Science and Engineering
Office of Advanced Cyberinfrastructure
Division of Computer and Network Systems

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):

January 21, 2020


- **Support Letters**
- **Consulting for Your Proposal**

cc-star-proposals@opensciencegrid.org



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Questions?

- support@opensciencegrid.org
- Lauren Michael, lmichael@wisc.edu
 - Facilitation Services lead (facilitation for campuses and researchers)